Disposition of Tendrils in the Bud.—In observing a number of cucurbits growing in my garden last season, I noticed that the tendrils were variously arranged previous to their full expansion.

There were three positions, and not far from the same number of species belonging to each sort, with possibly some preponderance in favor of the straight ones. They were either (1) unfolded or straight; (2) rolled from the apex downward upon the upper face, i. e., circinate; or (3) rolled backward from the apex, and the whole coil bent forward upon the upper face so as to make a loop or handle projecting beyond the coil. This last kind might well be called *ansulate*. The straight tendrils were found in balsam-apple, gherkin, teasel and gooseberry cucumbers and the dish-rag plant. They were at first necessarily very short, but in the climbing species soon exceeded the main axis from which they arose. The circinate ones were seen in the squash, pumpkin, wild cucumber (*Echinocystis*) and star-cucumber; and the ansulate in muskmelon, common cucumber, and *Mukia scabrella*. Some species of the genus *Cucumis* have straight and some ansulate tendrils, but the species of the other genera are uniform, so far as observed.—J. C. ARTHUR.

Autumn Color of the Bartram Oak.—It may be of interest to note that the autumn leaves of *Quercus heterophylla* color like the scarlet *Q. coccinea*. The early leaves of the season are more or less entire, but when the plants are growing freely, and make a secondary growth, as vigorous oaks often do, the later leaves much resemble *Quercus coccinea*. Indeed, when mixed it is difficult to separate them. I think with Martindale it is a good species, and that its relationship is with the Scarlet and Black oak.—THOMAS MEEHAN.

The Compound Crystals of Begonia.—A few weeks ago the students n the botanical laboratory of Wabash College were investigating plant crystals. One member of the class was working with the petiole of one of the large leaved Begonias and examining its well known compound crystals. Upon using his reagents to determine their chemical nature, he found his weaker acids slow to produce any effect, and determined, at any rate, to destroy the crystals, drew under the cover glass some undiluted sulphuric acid. Of course the crystals at once responded and began to dissolve rapidly, but the investigator's attention was at once attracted by the fact that the compound crystals had become bundles of raphides. Upon calling my attention to the fact I directed other members of the class to repeat the experiment, and in every case the compound crystals wasted away to bundles of raphides, lying in the direction of the longer axes of the crystals.

In this connection might be mentioned the fact that the same class found a better display of cystoliths in the stems of the common *Pilea pumila* than in any other plant studied. The cystoliths were very large, lying of course parallel with the fibers of the stem, and

several of them could be brought into one field under a low power. With a Beck's ¼ objective and A eyepiece some of them had both ends out of the field.—J. M. C.

The Flora of Madagascar.—Madagascar is wonderfully rich in its display of all kinds of life and its natural history has just been considered in some interesting papers published by Mr. J. G. Baker in the *Journal of Botany*. As Prof. Bessey says, this island is only a little more than three-fourths the size of the State of Texas and yet the number of species of flowering plants alone is estimated at from four to five thousand.

Mr. Baker closes his paper with the following summary of the leading characteristics of the Madagascar flora:—

1. The flora of the tropical zone throughout the world is remarkably homogeneous in its general character, and to this general rule Madagascar furnishes no marked exception. There is no well-marked plant type largely developed in the island which is not found elsewhere, and none absent that one might, *a priori*, expect.

2. About one in nine of the genera are endemic, but they are all small genera, mostly belonging to the large natural orders and closely allied to cosmopolitan generic types.

3. There is a close affinity between the tropical flora of Madagascar and that of the smaller islands of the Mascarene group.

4. There is a close affinity between the tropical flora of Madagascar and that of the African continent.

5. There are a few curious cases in which Asiatic types which do not occur in Africa are met with in Madagascar, but these bear a very small numerical proportion to the great mass of the flora.

6. There is a distinct affinity between the flora of the hill-country of Central Madagascar and those of the Cape and the mountain-ranges of Central Africa.

Epiphegus Virginiana.—The *Epiphegus Virginiana* exhibits an entirely different form of parasitic growth from those plants having haustoria or sucking roots The beech root (on which it grows) on being touched by the parasite, sends a branch, or branch-like growth into the latter, through which all its nourishment is carried, causing the death of the root from this point to its end, if not too large, while that above flourishes despite the drain of the parasite. If, however, the root is larger, and there is substance enough after the parasite is supplied, it will live, but will be retarded in its growth.—S. T. FERGUS, *West Chester, Pa.*

Phytolacca decandra L. A prolific case.—In an article in the July Number of the *American Naturalist*, I instanced our Eastern snow bird finding a cache of Pokewort seeds in a deep bank of snow by my garden fence. How the plant got there I do not know, but because of its elegance it was allowed to retain its place. This summer it has attained proportions which exceed anything I have ever seen. The plant threw out ten stems. Nine of these averaged ten